



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

DEC 24 1997

REPLY TO THE ATTENTION OF:

SR-6J

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

W.O. Green III, Senior Counsel
Kerr-McGee Corporation
Kerr-McGee Center
Oklahoma City, OK 73125

Re: Toledo Tie Treatment Site

Dear Mr. Green:

Enclosed please find a Unilateral Administrative Order issued by the U.S. Environmental Protection Agency (U.S. EPA) under Section 106 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended by the Superfund Amendments and Reauthorization Act of 1986 (CERCLA), 42 U.S.C. Section 9601, et seq.

Please note that the Order allows an opportunity for a conference if requested within 3 business days after issuance of the Order, or if no conference is requested, an opportunity to submit comments within 7 business days of issuance of the Order.

If you have any questions regarding the Order, feel free to contact Randa Bishlawi, Assistant Regional Counsel, at (312) 353-8917 or Ralph Dollhopf, On-Scene Coordinator, at (313) 692-7682.

Sincerely yours,

William E. Muho, Director
Superfund Division

Enclosure

cc: State Agency Superfund Coordinator
Christopher R. Schraff

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 5

IN THE MATTER OF:

Toledo Tie Treatment Site
Toledo, Ohio

Respondent: Kerr-McGee
Chemical Corporation

) Docket No.

V-W-33-C-444

) ADMINISTRATIVE ORDER
) PURSUANT TO SECTION 106(a)
) OF THE COMPREHENSIVE
) ENVIRONMENTAL RESPONSE,
) COMPENSATION, AND
) LIABILITY ACT OF 1980,
) AS AMENDED, 42 U.S.C.
) SECTION 9606(a)

I. JURISDICTION AND GENERAL PROVISIONS

This Order is issued pursuant to the authority vested in the President of the United States by Section 106(a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. § 9606(a), and delegated to the Administrator of the United States Environmental Protection Agency ("U.S. EPA") by Executive Order No. 12580, January 23, 1987, 52 Federal Register 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A and 14-14-B, and to the Director, Superfund Division, Region 5, by Regional Delegation Nos. 14-14-A and 14-14-B.

This Order pertains to the Toledo Tie Treatment Site which is located in and near the Arco Industrial Park, Toledo, Ohio and is comprised of all areas where contamination from the former creosoting operations of the Federal Creosoting Company and American Creosoting Corporation has come to be located. This Order requires the Respondent to conduct removal activities described herein to abate an imminent and substantial endangerment to the public health, welfare or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Toledo Tie Treatment Site.

U.S. EPA has notified the State of Ohio of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

II. PARTIES BOUND

This Order applies to and is binding upon Respondent and Respondent's heirs, receivers, trustees, successors and assigns. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Order. Respondents are jointly and severally liable for carrying out all activities required by this

Order. Compliance or noncompliance by one or more Respondent with any provision of this Order shall not excuse or justify noncompliance by any other Respondent. Respondent shall ensure that its contractors, subcontractors, and representatives comply with this Order. Respondent shall be responsible for any noncompliance.

III. FINDINGS OF FACT

Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds that:

1. The Toledo Tie Treatment Site is located in and near an industrial park, known as the Arco Industrial Park, in Toledo, Ohio. The Site is made up of approximately 17 individually owned lots that comprise a part of the Arco Industrial Park. The areal extent of the Site is defined as all areas where coal tar creosote contamination has come to be located at and near the Arco Industrial Park (the "Site").
2. The Site was part of a large 50 acre railroad tie treating facility owned and operated by the Federal Creosoting Company from approximately 1923 to 1959 and from 1959 to 1962 by the American Creosoting Corporation. Wooden railroad ties were treated with coal tar creosote at the Site by the Federal Creosoting Company and the American Creosoting Corporation to preserve the railroad ties. The creosoting operations included several above ground tanks containing creosote and creosote lagoons, located south of Frenchmens Road and east of the present day location of Arco Drive in the Arco Industrial Park.
3. Kerr-McGee Chemical Coporation (Kerr-McGee) is a successor corporation of the Federal Creosoting Company and American Creosoting Corporation.
4. In 1962 the City of Toledo acquired the Site and sold much of the Site to Arco Realty, Inc. a development company, in 1969. After 1969, the former railroad tie treatment facility area acquired by Arco Realty, Inc. was subdivided into a number of parcels by Arco Realty, Inc. and the area was developed into a business and industrial park. The parcels that comprise the Site are currently owned by a number of different parties and contain a number of different businesses.
3. A series of investigations by private parties at the Site from 1987 to 1990 indicated contamination of soil at the Site by polycyclic aromatic hydrocarbons (PAHs) which are compounds found in coal tar creosote.
4. In 1993, the Ohio EPA conducted a Site Inspection. The Site Inspection included collection of five soil samples, two sediment samples and two surface water samples from Williams Ditch. The soil sampling results demonstrated very high concentrations of 18 PAH

compounds in the area of the former creosote lagoons. The Ohio EPA concluded that the sediment in Williams Ditch near the intersection of Frenchmens Drive and Arco Drive contained at least one foot of creosote. Ohio EPAs analysis of the sediment confirmed the presence of PAH compounds including phenanthrene, naphthalene, acenaphthene, benzo(a)pyrene, fluoroanthene, pyrene, and chrysene.

5. There are approximately 75-100 people employed at the businesses in the Arco Industrial park. The closest residential areas are about 1/4 mile south and northeast of the Site. Williams Ditch traverses the Site and passes by a residential area northeast of Hill Avenue. The water in Williams Ditch then empties into the Ottawa River several miles downstream of the Site.

6. In 1995, the Ohio Department of Health conducted a Health Consultation at the Site and determined that the on-site subsurface soils and sediments in Williams Ditch are saturated with creosote and contaminated with PAHs, including benzo(a)pyrene. Exposure to PAHs has been associated with adverse skin effects, the development of lesions and skin cancer in animals and humans. ODH observed that the concentration of the contaminant benzo(a)pyrene in the sediments in Williams Ditch is up to 150 times the ODH calculated cancer screening level of 1.0 mg/kg. In its Health Consultation, the Ohio Department of Health identified risks to persons who may have dermal contact with creosote-contaminated soils or contaminated sediments at the Site if persons dig into contaminated soils or wade in Williams Ditch. Access to the contaminated soil and to Williams Ditch at the Site is unrestricted.

7. The contaminants of primary concern at the Site are the PAHs, including phenanthrene, naphthalene, acenaphthene, benzo(a)pyrene, fluoranthene, pyrene, chrysene and dibenzo(a,h)anthracene. These PAHs are hazardous substances within the definition of Section 101(14) of CERCLA, 42 U.S.C. § 9601(14) which have been released or are threatened to be released into the environment at or from the Site.

8. On September 25, 1997, following a significant rain event in Toledo, Ohio, the National Response Center was notified of the presence of a sheen of an unknown oil in Williams Ditch by National Super Service (NSS), a commercial occupant of the Arco Industrial Park. NSS also advised U.S. EPA that suspected creosote materials were blocking a portion of its on-site storm water runoff system, and that an oily sheen was present on Williams Ditch.

9. On October 1, 1997 representatives of U.S. EPAs Emergency Response Branch (ERB) evaluated conditions in Williams Ditch within the Arco Industrial Park. Extensive oil sheening upgradient of the NSS storm sewer outfall to Williams Ditch between Arco Drive and the outfall of the NSS storm sewer outfall was observed. This sheening was very heavy at a point in the ditch just east (50-100') of Arco Drive and just north (50-100') of the historical location of the suspected creosote lagoon areas.

These suspected former lagoon areas are also in the same location at which Ohio EPA measured high levels of PAH contaminants in 1993. The portion of Williams Ditch with heavy sheening is the point at which a storm sewer appearing to run through the lagoon area outfalls to Williams Ditch. It is also immediately adjacent to a section of Frenchmens Road, between the lagoon areas and Williams Ditch, where the road surface has undergone failure and where visual indications of subsurface releases of oil to the road surface were readily apparent. Although it appeared that the oil sheening was occurring upgradient of the NSS outfall as well as downgradient, NSS placed an absorbent boom across Williams Ditch just downstream of the NSS outfall.

10. On October 8, 1997, U.S. EPA was advised by contract personnel who had been dispatched to monitor site conditions that heavy accumulations of sheen were developing behind the NSS boom and that sheening upgradient in the vicinity of the historical lagoons was considerably heavier than previously observed. In addition, for the first time it was reported that sheen buildups were observed as far downgradient as Hill Avenue to the north of the industrial park. It was further reported that release of oily contaminants directly to the failed portion of Frenchmens Road was continuing at an increased rate. On October 10, 1997, consultants and contractors retained by Kerr-McGee voluntarily initiated oil containment and recovery efforts in Williams Ditch. On December 3 and 4, 1997, U.S. EPA advised Kerr-McGee that containment and recovery efforts following a rain event were not satisfactory.

IV. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, and the Administrative Record in this matter, U.S. EPA has determined that:

1. The Toledo Tie Treatment Site is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).
2. The following PAHs: phenanthrene, naphthalene, acenaphthene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluoranthene, pyrene and chrysene which have been released at the Site are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).
3. Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).
4. Respondent is a person who at the time of disposal of any hazardous substances owned or operated the Toledo Tie Treatment Site, or who arranged for disposal or transport for disposal of hazardous substances at the Toledo Tie Treatment Site. The Respondent is therefore liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).

5. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility into the "environment" as defined by Sections 101(8) and (22) of CERCLA, 42 U.S.C. §§ 9601(8) and (22).

6. The conditions present at the Site constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 CFR § 300.415(b)(2). These factors include, but are not limited to, the following:

a. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants; this factor is present at the Site due to the existence of PAHs in the soil and in the sediments of Williams Ditch. Access to Williams Ditch is completely uncontrolled and Williams Ditch flows through a residential area 1/4 mile downstream from the Arco Industrial Park.

b. High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate; this factor is present at the Site due to the existence of PAH contamination containing hazardous substances in soils at the Site and in Williams Ditch which flows offsite and discharges into the Ottawa River and ultimately into Lake Erie.

c. Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; this factor is present at the Site due to the movement of creosote from the lagoons to Williams Ditch when heavy rains occur. Such weather conditions contribute to further contamination of Williams Ditch and subsequently the Ottawa River and Lake Erie.

7. The actual or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

8. The removal actions required by this Order are necessary to protect the public health, welfare, or the environment, and are not inconsistent with the NCP and CERCLA.

V. ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for this Site, U.S. EPA hereby orders that Respondent perform the following actions:

1. Notice of Intent to Comply

Respondent shall notify U.S. EPA in writing within 3 business days after the effective date of this Order of Respondent's irrevocable intent to comply with this Order. Failure of the Respondent to provide such notification within this time period shall be a violation of this Order.

2. Designation of Contractor, Project Coordinator, and On-Scene Coordinator

Respondent shall perform the removal actions itself or retain a contractor to implement the removal actions. Respondent shall notify U.S. EPA of Respondent's qualifications or the name and qualifications of such contractor(s), whichever is applicable, within 5 business days of the effective date of this Order. Respondent shall also notify U.S. EPA of the name and qualifications of any other contractors or subcontractors retained to perform work under this Order at least 5 business days prior to commencement of such work. U.S. EPA retains the right to disapprove of the Respondent or any of the contractors and/or subcontractors retained by the Respondent. If U.S. EPA disapproves a selected contractor, Respondent shall retain a different contractor within 2 business days following U.S. EPA's disapproval and shall notify U.S. EPA of that contractor's name and qualifications within 3 business days of U.S. EPA's disapproval.

Within 5 business days after the effective date of this Order, the Respondent shall designate a Project Coordinator who shall be responsible for administration of all the Respondent's actions required by the Order and submit the designated coordinator's name, address, telephone number, and qualifications to U.S. EPA. To the greatest extent possible, the Project Coordinator shall be present on-site or readily available during site work. U.S. EPA retains the right to disapprove of any Project Coordinator named by the Respondent. If U.S. EPA disapproves a selected Project Coordinator, Respondent shall retain a different Project Coordinator within 3 business days following U.S. EPA's disapproval and shall notify U.S. EPA of that person's name and qualifications within 4 business days of U.S. EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from U.S. EPA relating to this Order shall constitute receipt by Respondent.

The U.S. EPA has designated Ralph Dollhopf of the Emergency Response Branch, Region 5, as its On-Scene Coordinator (OSC). U.S.

EPA has designated Deborah Orr of the Remedial Response Branch, Region 5, as its Remedial Project Manager to oversee the Engineering Evaluation/Cost Analysis investigation and related report for the Site. Respondent shall direct all submissions required by this Order to the OSC at 9311 Groh Road, Room 216, Grosse Ile, Michigan 48138-1697, by certified or express mail and to the RPM at 77 West Jackson Boulevard, (SR-6J), Chicago, Illinois 60604-3590. Respondent shall also send a copy of all submissions to Randa Bishlawi, Associate Regional Counsel, 77 West Jackson Boulevard, C-14J, Chicago, Illinois, 60606-3590. The Respondent is encouraged to make its submissions to U.S. EPA on recycled paper (which includes significant postconsumer waste paper content where possible) and using two-sided copies.

3. Work to Be Performed

Respondent shall perform, at a minimum, the following response activities:

- 1) Develop and implement a site health and safety plan, including an air monitoring plan;
- 2) Implement appropriate site security measures;
- 3) Completely contain and recover all the creosote contaminants that are migrating downstream in Williams Ditch and maintain the containment recovery system until such time that the contaminant sources have been removed or permanently controlled; complete containment and recovery shall mean at a minimum (1) daily removal of all visible oil and oil sheen accumulated on the water surface at all current boom locations and (2) the ditch surface should be cleared of ice at all times within a distance of ten feet upstream and downstream of all booms.
- 4) Identify the immediate source areas of creosote contamination that are contributing to the creosote and related contamination in Williams Ditch;
- 5) Remove the immediate source areas of hazardous substances or implement engineering controls to prevent the contamination in the source areas from migrating to Williams Ditch and to the surface of Frenchmens Road;
- 6) Characterize the extent of coal tar creosote contamination in the sediments and water of Williams Ditch;
- 7) Remove coal tar creosote contamination from Williams Ditch sediments and/or implement additional engineering controls to prevent continued release of contaminants to Williams Ditch and

- 8) Conduct investigation activities necessary to support an Engineering Evaluation/Cost Analysis (EE/CA) for consideration of non-time critical alternatives for removal and stabilization of remaining sources of coal tar creosote and related hazardous substance contamination to soil, sediments and surface water at the Site and complete an EE/CA Report consistent with U.S. EPA guidance entitled, "Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA", EPA/540-R-93-057, Publication 9360.32, PB 93-963402, dated August 1993.

All hazardous substances, pollutants or contaminants removed off site pursuant to this removal action for treatment, storage, and disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the U.S. EPA Off-site Rule, 40 CFR § 300.440.

3.1 Implementation and Work Plans

Within 5 business days after the effective date of this Order, Respondent shall implement task 3 - completely contain and recover all the creosote contaminants that are migrating downstream in Williams Ditch and maintain the containment recovery system until such time that the contaminant sources have been removed or permanently controlled.

Within 30 days after the effective date of this Order, the Respondent shall submit to U.S. EPA for approval a draft Work Plan for performing the removal activity tasks 1 through 7 set forth above in Paragraph 3.0. The draft Work Plan shall provide a description of, and an expeditious schedule for, the activities required by this Order.

Within 40 days after the effective date of this Order, the Respondent shall submit to U.S. EPA for approval a draft Work Plan for the EE/CA described above in removal activity task 8. The draft Work Plan shall provide a description of, and an expeditious schedule for the EE/CA activities required by this Order.

U.S. EPA may approve, disapprove, require revisions to, or modify the draft Work Plans. If U.S. EPA requires revisions, Respondent shall submit a revised draft Work Plan within 7 business days of notification. Respondent shall implement the Work Plans as finally approved in writing by U.S. EPA within 10 days of receipt of such approval in accordance with the schedule approved by U.S. EPA. Once approved, or approved with modifications, the Work Plans, the schedules, and any subsequent modifications shall be fully enforceable under this Order. Respondent shall notify U.S. EPA at least 48 hours prior to performing any on-site work pursuant to the U.S. EPA approved work plan.

Respondent shall not commence or undertake any removal actions at the Site without prior U.S. EPA approval.

3.2 Health and Safety Plan

Within 30 days after the effective date of this Order, the Respondent shall submit a plan for U.S. EPA review and comment that ensures the protection of the public health and safety during performance of on-site work under this Order. This plan shall comply with applicable Occupational Safety and Health Administration (OSHA) regulations found at 29 CFR Part 1910. If U.S. EPA determines it is appropriate, the plan shall also include emergency contingency planning. Respondent shall incorporate all changes to the plan recommended by U.S. EPA, and implement the plan during the pendency of the removal action.

3.3 EE/CA Report

Respondent shall develop and submit to U.S. EPA a draft EE/CA Report within 120 days of the date of U.S. EPAs approval of the EE/CA Work Plan. The EE/CA Report must be developed in accordance with the attached Scope of Work (SOW). The SOW is incorporated into and made an enforceable part of this Order.

The EE/CA Report shall be consistent with, at a minimum, U.S. EPA guidance entitled, "Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA", EPA/540-R-93-057, Publication 9360.32, PB 93-963402, dated August 1993.

U.S. EPA may approve, disapprove, require revisions to, or modify the draft EE/CA report. If U.S. EPA requires revisions, Respondent shall submit a revised EE/CA incorporating U.S. EPAs revisions within 10 business days of notification.

3.4 Quality Assurance and Sampling

All sampling and analyses performed pursuant to this Order shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain of custody procedures. Respondent shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance. Upon request by U.S. EPA, Respondent shall have such a laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring. Respondent shall provide to U.S. EPA the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis. Respondent shall also ensure provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, "Extending the Tracking of Analytical Services to PRP-Lead Superfund Sites."

Upon request by U.S. EPA, Respondent shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by Respondent or its contractors or agents while performing work under this Order. Respondent shall notify U.S. EPA not less than 3 business days in advance of any sample collection activity. U.S. EPA shall have the right to take any additional samples that it deems necessary.

3.5 Reporting

Respondent shall submit a monthly written progress report to U.S. EPA concerning activities undertaken pursuant to this Order, beginning 30 calendar days after the date of U.S. EPA's approval of the first Work Plan, until termination of this Order, unless otherwise directed by the OSC or RPM. During the period of time while booms are in place on Williams Ditch for containment, Respondent shall submit weekly one page project summaries of containment and recovery activities. The monthly reports shall describe all significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reporting period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

Any Respondent that owns any portion of the Site, and any successor in title shall, at least 30 days prior to the conveyance of any interest in real property at the Site, give written notice of this Order to the transferee and written notice of the proposed conveyance to U.S. EPA and the State. The notice to U.S. EPA and the State shall include the name and address of the transferee. The party conveying such an interest shall require that the transferee will provide access as described in Section V.4 (Access to Property and Information).

3.6 Final Report

Within 60 calendar days after completion of all removal actions required under this Order, the Respondent shall submit for U.S. EPA review a final report summarizing the actions taken to comply with this Order. The final report shall conform to the requirements set forth in Section 300.165 of the NCP. The final report shall also include a good faith estimate of total costs incurred in complying with the Order, a listing of quantities and types of materials removed, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destinations of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits).

The final report shall also include the following certification signed by a person who supervised or directed the preparation of

that report:

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

4. Access to Property and Information

Respondent shall provide or obtain access as necessary to the Site and all appropriate off-site areas, and shall provide access to all records and documentation related to the conditions at the Site and the activities conducted pursuant to this Order. Such access shall be provided to U.S. EPA employees, contractors, agents, consultants, designees, representatives, and State of Ohio representatives. These individuals shall be permitted to move freely at the Site and appropriate off-site areas in order to conduct activities which U.S. EPA determines to be necessary. Respondent shall submit to U.S. EPA, upon request, the results of all sampling or tests and all other data generated by Respondent or its contractor, or on the Respondent's behalf during implementation of this Order.

Where work under this Order is to be performed in areas owned by or in possession of someone other than Respondent, Respondent shall obtain all necessary access agreements within 14 calendar days after the effective date of this Order, or as otherwise specified in writing by the OSC or RPM. Respondent shall immediately notify U.S. EPA if, after using its best efforts, it is unable to obtain such agreements. Respondent shall describe in writing its efforts to obtain access. U.S. EPA may then assist Respondent in gaining access, to the extent necessary to effectuate the response activities described herein, using such means as U.S. EPA deems appropriate.

5. Record Retention, Documentation, Availability of Information

Respondent shall preserve all documents and information, in its possession or the possession of its contractors, subcontractors or representatives, relating to work performed under this Order, or relating to the hazardous substances found on or released from the Site, for six years following completion of the removal actions required by this Order. At the end of this six year period and at least 60 days before any document or information is destroyed, Respondent shall notify U.S. EPA that such documents and information are available to U.S. EPA for inspection, and upon request, shall provide the originals or copies of such documents and information to U.S. EPA. In addition, Respondent shall provide documents and information retained under this Section at any time before expiration of the six year period at the written request of U.S. EPA.

6. Off-Site Shipments

All hazardous substances, pollutants or contaminants removed off-site pursuant to this Order for treatment, storage or disposal shall be treated, stored, or disposed of at a facility in compliance, as determined by U.S. EPA, with the EPA Off-Site Rule, 40 CFR § 300.440, 58 Federal Register 49215 (Sept. 22, 1993).

7. Compliance With Other Laws

All actions required pursuant to this Order shall be performed in accordance with all applicable local, state, and federal laws and regulations except as provided in CERCLA Section 121(e) and 40 CFR Section 300.415(j). In accordance with 40 CFR Section 300.415(j), all on-site actions required pursuant to this Order shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws.

8. Emergency Response and Notification of Releases

If any incident, or change in Site conditions, during the activities conducted pursuant to this Order causes or threatens to cause an additional release of hazardous substances from the Site or an endangerment to the public health, welfare, or the environment, the Respondent shall immediately take all appropriate action to prevent, abate or minimize such release, or endangerment caused or threatened by the release. Respondent shall also immediately notify the OSC or, in the event of his/her unavailability, shall notify the Regional Duty Officer, Emergency Response Branch, Region 5 at (312) 353-2318, of the incident or Site conditions.

Respondent shall submit a written report to U.S. EPA within 7 business days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. Respondent shall also comply with any other notification requirements, including those in CERCLA Section 103, 42 U.S.C. § 9603, and Section 304 of the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. § 11004.

VI. AUTHORITY OF THE U.S. EPA ON-SCENE COORDINATOR AND
REMEDIAL PROJECT MANAGER

The OSC and RPM shall be responsible for overseeing the implementation of this Order. The OSC and RPM shall have the authority vested in an OSC and RPM by the NCP, including the authority to halt, conduct, or direct any work required by this Order, or to direct any other response action undertaken by U.S. EPA or Respondent at the Site. Absence of the OSC or RPM from the Site shall not be cause for stoppage of work unless specifically

directed by the OSC or RPM.

U.S. EPA and Respondent shall have the right to change their designated OSC, RPM or Project Coordinator. U.S. EPA shall notify the Respondent, and Respondent shall notify U.S. EPA, as early as possible before such a change is made, but in no case less than 24 hours before such a change. Notification may initially be made orally, but shall be followed promptly by written notice.

VII. PENALTIES FOR NONCOMPLIANCE

Violation of any provision of this Order may subject Respondent to civil penalties of up to \$25,000 per violation per day, as provided in Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1). Respondent may also be subject to punitive damages in an amount up to three times the amount of any cost incurred by the United States as a result of such violation, as provided in Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Should Respondent violate this Order or any portion hereof, U.S. EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Order pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606.

VIII. REIMBURSEMENT OF COSTS

Respondent shall reimburse U.S. EPA, upon written demand, for all response costs incurred by the United States in overseeing Respondent's implementation of the requirements of this Order. U.S. EPA may submit to Respondent on a periodic basis a bill for all response costs incurred by the United States with respect to this Order. U.S. EPA's Itemized Cost Summary, or such other summary as certified by U.S. EPA, shall serve as the basis for payment.

Respondent shall, within 30 days of receipt of the bill, remit a cashier's or certified check for the amount of those costs made payable to the "Hazardous Substance Superfund," to the following address:

U.S. Environmental Protection Agency
Superfund Accounting
P.O. Box 70753
Chicago, Illinois 60673

Respondent shall simultaneously transmit a copy of the check to the Director, Superfund Division, U.S. EPA Region 5, 77 West Jackson Blvd., Chicago, Illinois, 60604-3590. Payments shall be designated as "Response Costs - (Site Name) Site" and shall reference the payor's name and address, the U.S. EPA site identification number (number), and the docket number of this Order.

Interest at a rate established by the Department of the Treasury pursuant to 31 U.S.C. § 3717 and 4 CFR § 102.13 shall begin to accrue on the unpaid balance from the day after the expiration of the 30 day period notwithstanding any dispute or an objection to any portion of the costs.

IX. RESERVATION OF RIGHTS

Nothing herein shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this Order. U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require the Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

X. OTHER CLAIMS

By issuance of this Order, the United States and U.S. EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or U.S. EPA shall not be a party or be held out as a party to any contract entered into by the Respondent or its directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out activities pursuant to this Order.

This Order does not constitute a pre-authorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2).

Nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against the Respondent or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or the common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106(a) or 107(a) of CERCLA, 42 U.S.C. §§ 9606(a), 9607(a).

XI. MODIFICATIONS

Modifications to any plan or schedule may be made in writing by the OSC or RPM or at the OSC's or RPMs oral direction. If the OSC or RPM makes an oral modification, it will be memorialized in writing within 7 business days; however, the effective date of the modification shall be the date of the OSC's or RPMs oral direction. The rest of the Order, or any other portion of the

Order, may only be modified in writing by signature of the Director, Superfund Division, Region 5.

If Respondent seeks permission to deviate from any approved plan or schedule, Respondent's Project Coordinator shall submit a written request to U.S. EPA for approval outlining the proposed modification and its basis.

No informal advice, guidance, suggestion, or comment by U.S. EPA regarding reports, plans, specifications, schedules, or any other writing submitted by the Respondent shall relieve Respondent of its obligations to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified.

XII. NOTICE OF COMPLETION

After submission of the Final Report, Respondent may request that U.S. EPA provide a Notice of Completion of the work required by this Order. If U.S. EPA determines, after U.S. EPA's review of the Final Report, that all work has been fully performed in accordance with this Order, except for certain continuing obligations required by this Order (e.g., record retention), U.S. EPA will provide written notice to the Respondent. If U.S. EPA determines that any removal activities have not been completed in accordance with this Order, U.S. EPA will notify the Respondent, provide a list of the deficiencies, and require that Respondent modify the Work Plan to correct such deficiencies. The Respondent shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the U.S. EPA notice. Failure to implement the approved modified Work Plan shall be a violation of this Order.

XIII. ACCESS TO ADMINISTRATIVE RECORD

The Administrative Record supporting these removal actions is available for review during normal business hours in the U.S. EPA Record Center, Region 5, 77 W. Jackson Blvd., Seventh Floor, Chicago, Illinois. Respondent may contact Randa Bishlawi, Associate Regional Counsel, at (312) 353-8917 to arrange to review the Administrative Record. An index of the Administrative Record is attached to this Order.

XIV. OPPORTUNITY TO CONFER

Within 3 business days after issuance of this Order, Respondent may request a conference with U.S. EPA. Any such conference shall be held within 5 business days from the date of the request, unless extended by agreement of the parties. At any conference held pursuant to the request, Respondent may appear in person or be

represented by an attorney or other representative.

If a conference is held, Respondent may present any information, arguments or comments regarding this Order. Regardless of whether a conference is held, Respondent may submit any information, arguments or comments (including justifications for any assertions that the Order should be withdrawn against a Respondent), in writing to U.S. EPA within 2 business days following the conference, or within 7 business days of issuance of the Order if no conference is requested. This conference is not an evidentiary hearing, does not constitute a proceeding to challenge this Order, and does not give Respondent a right to seek review of this Order. Requests for a conference shall be directed to Randa Bishlawi, Associate Regional Counsel, at (312)353-8917. Written submittals shall be directed as specified in Section V.2 of this Order.

XV. SEVERABILITY

If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

XVI. EFFECTIVE DATE

This Order shall be effective 10 business days following issuance unless a conference is requested as provided herein. If a conference is requested, this Order shall be effective 5 business days after the day of the conference.

IT IS SO ORDERED

BY: 

William E. Muno, Director
Superfund Division
United States
Environmental Protection Agency
Region 5

DATE: 12/24/97

ATTACHMENT A

INDEX TO ADMINISTRATIVE RECORD

<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
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12/05/95	OEPA		Health Consultation, Toledo Tie Treatment Site	11
10/03/97	Orr, D. U.S. EPA	Dollhopf, R. U.S. EPA	Memo Re Toledo Tie Treatment Site	1
10/09/97	Mariucci, G. National Super Services	NRC U.S.C.G.	Spill Report Re Toledo Tie Treatment Site	2
10/22/97	Richardson, I. Conestoga- Rovers & Assoc.	Dollhopf, R. U.S. EPA Toledo, Ohio	Progress Update No. 1 National Super Service Plant	5
10/31/97	Lockhart, S. Hull & Assoc.	Dollhopf, R. U.S. EPA	Letter and memo Re Williams Ditch Project, Toledo, Ohio	24
11/05/97	Lescallett, G. Hull & Assoc.	Dollhopf, R. U.S. EPA	Update of Site Activities, Williams Ditch Project, Toledo, Ohio	4
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11/19/97	Richardson, I. Conestoga- Rovers & Assoc.	Dollhopf, R. U.S. EPA	Progress Update No. 2, National Super Service Plant, Toledo, Ohio	3
11/19/97	Dollhopf, R.	Lockhart, S.	Letter Re Toledo Tie Treatment Plant Site	2
12/01/97	Dollhopf, R. U.S. EPA	Nabors, R. OEPA	Letter Requesting State ARARs	1
12/21/97	Muno, W.		Action Memorandum	

ATTACHMENT B
LIABILITY FILE INDEX

1. Kerr-McGee Chemical Corporations response dated April 17, 1997 to U.S. EPAs CERCLA 104(e) request and all attachments.

2. Edward X. Junia of Eastman & Smiths letter dated March 12, 1992 to Ohio EPA regarding Federal Creosoting Company and American Creosoting Corporation and attachments.

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**SCOPE OF WORK FOR ENGINEERING EVALUATION/COST ANALYSIS
AT
TOLEDO TIE TREATMENT SITE
TOLEDO, LUCAS COUNTY, OHIO**

PURPOSE

The purpose of this Scope of Work (SOW) is to set forth requirements for the preparation of an Engineering Evaluation/Cost Analysis (EE/CA) which shall evaluate alternatives for conducting a non-time critical removal action at the Toledo Tie Treatment Site (Site) to address coal tar creosote contamination that will remain on-site following completion of the time-critical removal actions. The EE/CA shall be conducted, at a minimum, consistent with U.S. EPA guidance entitled, "Guidance on Conducting Non-Time critical Removal Actions Under CERCLA," EPA/540-R-93-057, Publication 9360.32, PB 93-963402, dated August 1993 (Guidance). Respondent shall furnish all personnel, materials, and services necessary for, or incidental to, performing the EE/CA at the Toledo Tie Treatment Site, except as otherwise specified herein.

SCOPE

The tasks to be completed as part of this EE/CA are:

- Task 1. EE/CA Support Sampling Plan
- Task 2. EE/CA Support Sampling
- Task 3. Data Report
- Task 4. EE/CA

TASK 1: EE/CA SUPPORT SAMPLING PLAN

In accordance with the approved schedule, the Respondent shall submit a Sampling Plan that addresses all data acquisition activities. The objective of this EE/CA support sampling is to further determine the extent of contamination at the Site beyond that already identified by the Site Investigation data. The plan shall contain a description of equipment specifications, required analyses, sample types, and sample locations and frequency. The plan shall investigate the following areas:

- Former location of Williams Ditch
- Former Creosoting Plant and Tanks Area
- Treated Railroad Tie Storage Area
- Stockpiled Material on property along Frenchmens Road
- Access Road (Creosote Road)

The plan shall address specific hydrologic, hydrogeologic, and air transport characterization methods including, but not limited to, geologic mapping, geophysics, field screening, drilling and well installation, flow determination, and soil/water/sediment/sludge sampling to determine extent of contamination.

Respondent shall identify the data requirements of specific remedial technologies that may be necessary to evaluate removal activities in the EE/CA. Respondent shall provide a schedule stating when events will take place and when deliverables will be submitted.

The EE/CA Support Sampling Plan shall include the following information:

A. Site Background

The Site is located in an area where the glacial drift is approximately 80 feet thick, and is composed of clayey materials with occasional seams of sand and gravel. Carbonate bedrock is found at approximately 110-125 feet below ground surface. This confined aquifer consists of hard, dolomitic, porous limestone, and generally flows northeasterly toward Lake Erie. Groundwater is encountered at about three feet.

The soils in this areas consist of loamy udorthents of the Bixler-Dixboro series. These areas are nearly level to gently sloping and are somewhat poorly drained. This type of soil is usually formed in loamy and sandy glacial lake sediment. Loamy udorthent soils generally consist of mixed organic and inorganic material overlain by a loamy soil material. Some areas consist of sandy and clayey soil material and may be filled with various building materials.

The Site lies in an area of Toledo that has been cut and filled for urban development. According to soil boring logs and aerial photos, cut and fill activities occurred, most likely during development of the industrial park. A number of on-site investigations have been conducted at the Site since 1990 which have shown that the on-site soils and the sediments in Williams Ditch are contaminated with creosote products, including a variety of polycyclic aromatic hydrocarbons (PAHs). The most recent review of site history and sampling (March 1993) confirmed the following:

Surface water. The 1993 sampling showed the concentration of metals in surface water was three times the concentration of metals in background samples and the samples also contained low levels of Volatile Organic Compounds (VOCs) and endosulfan I. Sampling in 1992 at the site detected benzene, cis-1,2-dichloroethene, ethylbenzene, tetrachloroethene, toluene, vinyl chloride and xylenes in a sample.

Sediments . The sediments in Williams Creek adjacent to the site are contaminated with PAHs ranging from 180 - 720 part per million (ppm). Background samples are a couple of order of magnitudes less. Ohio EPA observed at least a one foot layer of creosote in the ditch adjacent to the Site. According to our review of aerial photographs, Williams Ditch was moved to accommodate the development. The former ditch area should be evaluated to determine if it is a source of contamination.

Soils . The soils near the creosote lagoon area were sampled and it was confirmed that they contain VOCs and PAHs ranging in concentration of 44 - 3700 ppm. The waste pile area contains PAHs and metals at concentrations 3 times the background.

B. Data Gap Description

Respondent shall analyze the currently available data to determine the areas of the Site which require additional data in order to define the extent of contamination for purposes of implementing a removal action. Figure 2 identifies areas discussed above. A description of the number, types, and locations of additional samples to be collected shall be included in this section of the sampling plan.

Descriptions of the following activities shall also be included:

- I. Waste Characterization
Respondent shall include a program for characterizing the waste materials at the Site. This shall include an analysis of current information/data on past disposal practices at the Site.
- ii. Hydrogeologic Investigation
The plan shall include the degree of hazard, the mobility of pollutants, discharges/recharge areas, regional and local flow direction and quality, and local uses of groundwater. The plan shall also develop a strategy for determining horizontal and vertical distribution of contaminants. Upgradient samples shall be included in the plan.
- iii. Soils and Sediments Investigation
Respondent shall include a program to determine the extent of contamination of surface and subsurface soils at the Site. The plan shall also determine the extent, including depth, of contamination of sediments in Williams Ditch and its tributaries. The plan shall include a determination of levels of contamination from areas upstream of the Site. Samples of any leachate from the areas described as fill areas shall also be collected.

iv. Surface Water Investigation

Respondent shall include a program to determine the areas of surface water contamination in Williams Ditch.

C. Sampling Procedures

Respondent shall include a description of the depths of sampling, parameters to be analyzed, equipment to be used, decontamination procedures to be followed, sample quality assurance, data quality objectives and sample management procedures to be utilized in the field.

D. Health and Safety Plan

Respondent shall modify as necessary the Site health and safety plan to protect on-site personnel, area residents and nearby workers from physical, chemical and all other hazards posed by this sampling event. The modified health and safety plan shall develop the performance levels and criteria necessary to address the following areas:

- General requirements
- Personnel
- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal hygiene
- Decontamination - personal and equipment
- Site work zones
- Contaminant control
- Contingency and emergency planning
- Logs, reports and record keeping

The safety plan shall, at a minimum, follow U.S. EPA guidance document Standard Operating Safety Guides (Publication 9285.1-03, P B 92-963414, June 1992), and all OSHA requirements as outlined in 29 CFR 1910.

E. Schedule

Respondent shall include a schedule which identifies timing for initiation and completion of all tasks to be completed as part of this EE/CA Support Sampling Plan.

TASK 2: EE/CA SUPPORT SAMPLING

Respondent shall conduct the EE/CA Support Sampling activity according to the approved Sampling Plan and schedule. Respondent shall coordinate activities with U.S. EPA's Deborah Orr. Respondent shall provide Deborah Orr with all laboratory data.

TASK 3: DATA REPORT

According to the U.S. EPA-approved schedule in the EE/CA Support Sampling Plan, a report, in table-form, shall be provided by Respondent to U.S. EPA. This report shall summarize the sampling results from both the EE/CA Support Sampling and from previous sampling events. If requested, copies of all raw data shall be provided by Respondent to U.S. EPA for a validation check.

TASK 4: ENGINEERING EVALUATION/COST ANALYSIS REPORT (EE/CA)

The EE/CA Report shall include and address the following:

- 1 Executive Summary
- 2 Site Characterization
 - 2.1 Site Description and Background
 - 2.1.1 Site Location and Physical Setting
 - 2.1.2 Geology/Hydrology/Hydraulics
 - 2.1.3 Surrounding Land Use and Populations
 - 2.1.4 Sensitive Ecosystems
 - 2.1.5 Meteorology
 - 2.2 Previous Removal Actions
 - 2.3 Source, Nature, and Extent of Contamination
 - 2.4 Analytical Data
 - 2.5 Streamlined Risk Evaluation
- 3 Identification of Removal Action Objectives
 - 3.1 Determination of Removal Scope
 - 3.2 Determination of Removal Schedule
 - 3.3 Identification of and Compliance with ARARs
 - 3.4 Planned Remedial Activities
- 4 Identification and Analysis of Removal Action Alternatives
- 5 Detailed Analysis of Alternatives
 - 5.1 Effectiveness
 - 5.1.1 Overall Protection of Public Health and the Environment
 - 5.1.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance
 - 5.1.3 Long-Term Effectiveness and Permanence
 - 5.1.4 Reduction of Toxicity, Mobility, or Volume Through Treatment
 - 5.1.5 Short-Term Effectiveness
 - 5.2 Implementability
 - 5.2.1 Technical Feasibility
 - 5.2.2 Administrative Feasibility
 - 5.2.3 Availability of Services and Materials
 - 5.2.4 State and Community Acceptance
 - 5.3 Cost
 - 5.3.1 Direct Capital Costs
 - 5.3.2 Indirect Capital Costs
 - 5.3.3 Long-Term Operation and Maintenance
- 6 Comparative Analysis of Removal Action Alternatives
- 7 Schedule for EE/CA Submission

The following is a brief description for each element itemized above.

1 Executive Summary

The Executive Summary shall provide a general overview of the contents of the EE/CA. It shall contain a brief discussion of the site and the current and/or potential threat posed by conditions at the site. It shall also identify the scope and objectives of the removal action and the alternatives.

2 Site Characterization

The EE/CA shall summarize available data on the physical, demographic, and other characteristics of the Site and the surrounding areas. Specific topics which shall be addressed in the site characterization are detailed below. The site characterization shall concentrate on those characteristics necessary to evaluate and select an appropriate remedy.

2.1 Site Description and Background

The site description includes current and historical information. The following types of information shall be included, where available and as appropriate, to the site-specific conditions and the scope of the removal action.

- 2.1.1 Site Location and Physical Setting
- 2.1.2 Present and Past Facility Operations
- 2.1.3 Geology/Hydrology/Hydraulics
- 2.1.4 Surrounding Land Use and Populations
- 2.1.5 Sensitive Ecosystems
- 2.1.6 Meteorology

2.2 Previous Removal Actions

The site characterization section shall also describe any previous removal actions at the site. Previous information, if relevant, shall be organized as follows:

- * The scope and objectives of the previous removal action
- * The amount of time spent on the previous removal action
- * The nature and extent of hazardous substances, pollutants, or contaminants treated or controlled during the previous removal action
- * The technologies used and/or treatment levels used for the previous removal action.

2.3 Source, Nature and Extent of Contamination

This section shall summarize the available site characterization data for metals, PAHs and creosote, including the locations of the hazardous substances, pollutants, or contaminants; the quantity, volume, size or magnitude of the contamination; and the physical and chemical attributes of the hazardous pollutants or contaminants.

2.4 Analytical Data

This section shall present the available data, including, but not limited to analytical summaries and other quantifiable data collected for the EE/CA in the form of tables and charts. When sufficient data are collected, significant findings should be presented in a narrative discussion as well.

2.5 Streamlined Risk Evaluation

It shall use data from the site to identify the chemicals of concern, provide an estimate of how and to what extent human and/or environmental receptors might be exposed to these chemicals, and provide an assessment of the health effects associated with these chemicals. The evaluation shall project the potential risk of health problems occurring if no cleanup action is taken at the site. The risk evaluation shall be conducted in accordance with U.S. EPA guidance including, at a minimum: Risk Assessment Guidance for Superfund (RAGS) (EPA/540/1-89/002, December 1989). The ecological risk evaluation shall also be conducted in accordance with U.S. EPA guidance including, at a minimum: Risk Assessment Guidance for Superfund Volume II Environmental Evaluation Manual, (EPA/540/1-89/001, March 1989).

3 Identification of Removal Action Objectives

The EE/CA shall develop removal action objectives, taking into consideration the following factors:

- * Prevention or abatement of actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants;
- * Prevention or abatement of actual or potential contamination of drinking water supplies or sensitive ecosystems;

- * Stabilization or elimination of hazardous substances in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release;
- * Treatment or elimination of high levels of hazardous substances, pollutants, or contaminants in soils or sediments largely at or near the surface that may migrate;
- * Elimination of threat of fire or explosion;
- * Mitigation or abatement of other situations or factors that may pose threats to public health, welfare, or the environment.

3.1 Determination of Removal Scope

The EE/CA shall define the broad scope and specific objectives of the removal action and address the protectiveness of the removal action. The EE/CA shall discuss how the goals of the removal action are consistent with any potential long-term remediation. At a minimum, the EE/CA removal objectives shall include:

1. Development and implementation a Site Health and Safety Plan.
2. Implementation of appropriate site security measures.
3. Removal and stabilization of sources of creosote and related hazardous substance contamination that will remain on-site following completion of the time-critical removal action, including any areas of contamination remaining following removal and disposal of the immediate source areas of hazardous substances migrating to Williams Ditch and to the surface of Frenchmens Road.

3.2 Determination of Removal Schedule

The general schedule for removal activities shall be developed, including both the start and completion time for the removal action.

4 Identification and Analysis of Removal Action Alternatives

Based on the analysis of the nature and extent of contamination and on the cleanup objectives developed in the previous section, a limited number of alternatives appropriate for addressing the removal action objectives shall be identified and assessed. Whenever practicable, the alternatives shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches.

Based on the available information, only the most qualified technologies that apply to the media or source of contamination shall be discussed in the EE/CA. The use of presumptive remedy guidance may also provide an immediate focus to the identification and analysis of alternatives. Presumptive remedies involve the use of remedial technologies that have been consistently selected at similar sites or for similar contamination.

A limited number of alternatives, including any identified presumptive remedies, shall be selected for detailed analysis. Each of the alternatives shall be described with enough detail so that the entire treatment process can be understood. Technologies that may apply to the media or source of contamination shall be listed into the EE/CA. In some cases, it may be more appropriate to consider only a category of technologies. For example, on-site incineration would be considered a technology category that may include rotary kiln, fluidized bed, etc.

The preliminary list of alternatives to address the Site shall consist of one or more alternatives from each of the following generic removal alternative categories:

- on-site treatment, or
- off-site disposal.

5 Detailed Analysis of Alternatives

Defined alternatives are evaluated against the short- and long-term aspects of three broad criteria: effectiveness, implementability, and cost.

5.1 Effectiveness

The effectiveness of an alternative refers to its ability to meet the objective regarding the scope of the removal action. The "Effectiveness" discussion for each alternative shall evaluate the degree to which the technology would mitigate threats to public health and the environment. Criteria to be considered include:

5.1.1 Overall Protection of Public Health and the Environment

How well each alternative protects public health and the environment shall be discussed in a consistent manner. Assessments conducted under other evaluation criteria, including long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs shall be included in the discussion. Any unacceptable short-term impacts shall be identified. The discussion shall focus on how each alternative achieves adequate protection and

describe how the alternative will reduce, control, or eliminate risks at the site through the use of treatment, engineering, or institutional controls.

5.1.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance

The detailed analysis shall summarize which requirements are applicable or relevant and appropriate to an alternative and describe how the alternative meets those requirements. A summary table may be employed to list potential ARARs. In addition to ARARs, U.S. EPA may identify other Federal or State advisories, criteria, or guidance to be considered (TBC) for a particular release. TBCs are not required by the NCP; rather, TBCs are meant to complement the use of ARARs.

5.1.3 Long-Term Effectiveness and Permanence

This evaluation assesses the extent and effectiveness of the controls that may be required to manage risk posed by treatment residuals and/or untreated wastes at the site. The following components shall be considered for each alternative: magnitude of risk, and, adequacy and reliability of controls.

5.1.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

U.S. EPA's policy of preference for treatment requires evaluation based upon the following subfactors for a particular alternative:

- * The treatment process(es) employed and the material(s) it will treat
- * The amount of the hazardous materials to be destroyed or treated
- * The degree of reduction expected in toxicity, mobility, or volume
- * The degree to which treatment will be irreversible
- * The type and quantity of residuals that will remain after treatment
- * Whether the alternative will satisfy the preference for treatment

5.1.5 Short-Term Effectiveness

The short-term effectiveness criterion addresses the effects of the alternative during implementation before the removal objectives have been met. Alternatives shall also be evaluated with respect to their effects on human health and the environment following implementation. The following factors shall be addressed as appropriate for each alternative:

- * Protection of the Community
- * Protection of the Workers
- * Environmental Impacts
- * Time Until Response Objectives are Achieved

5.2 Implementability

This section is an assessment of the implementability of each alternative in terms of the technical and administrative feasibility and the availability of the goods and services necessary for each alternative's full execution. The following factors shall be considered under this criterion.

5.2.1 Technical Feasibility

The degree of difficulty in constructing and operating the technology; the reliability of the technology, the availability of necessary services and materials; the scheduling aspects of implementing the alternatives during and after implementation; the potential impacts on the local community during construction operation; and the environmental conditions with respect to set-up and construction and operation shall be described. Potential future remedial actions shall also be discussed. The ability to monitor the effectiveness of the alternatives may also be described.

5.2.2 Administrative Feasibility

The administrative feasibility factor evaluates those activities needed to coordinate with other offices and agencies. The administrative feasibility of each alternative shall be evaluated, including the need for off-site permits, adherence to applicable nonenvironmental laws, and concerns of other regulatory agencies. Factors that shall be considered include, but are not limited to, the following: statutory limits, permits and waivers.

5.2.3 Availability of Services and Materials

The EE/CA must determine if off-site treatment, storage, and disposal capacity, equipment, personnel, services and materials, and other resources necessary to implement an alternative shall be available in time to maintain the removal schedule.

5.2.4 State and Community Acceptance

Each alternative shall be evaluated to determine its projected costs. The evaluation should compare each alternative's capital and operation and maintenance costs. The present worth of alternatives should be calculated.

5.3.1 Direct Capital Costs

Costs for construction, materials, land, transportation, analysis of samples, treatment shall be presented.

5.3.2 Indirect Capital Costs

Cost for design, legal fees, permits shall be presented.

5.3.3 Long-Term Operation and Maintenance Costs

Costs for maintenance and long-term monitoring shall be presented.

6 Comparative Analysis of Removal Action Alternatives

Once removal action alternatives have been described and individually assessed against the evaluation criteria described in Section 5, above, a comparative analysis shall be conducted to evaluate the relative performance of each alternative in relation to each of the criteria. The purpose of the analysis shall be to identify advantages and disadvantages of each alternative relative to one another so that key trade offs that would affect the remedy selection can be identified.

7 Schedule for EE/CA Submission

The Respondents shall discuss at a meeting or during a telephone conference call the alternatives to undergo a more detailed analysis. A draft EE/CA shall be submitted to U.S. EPA within 120 days of U. S. EPA approval of EE/CA work plan.

**FIGURE 1
TOLEDO TIE TREATMENT SITE
CIRCA 1990**

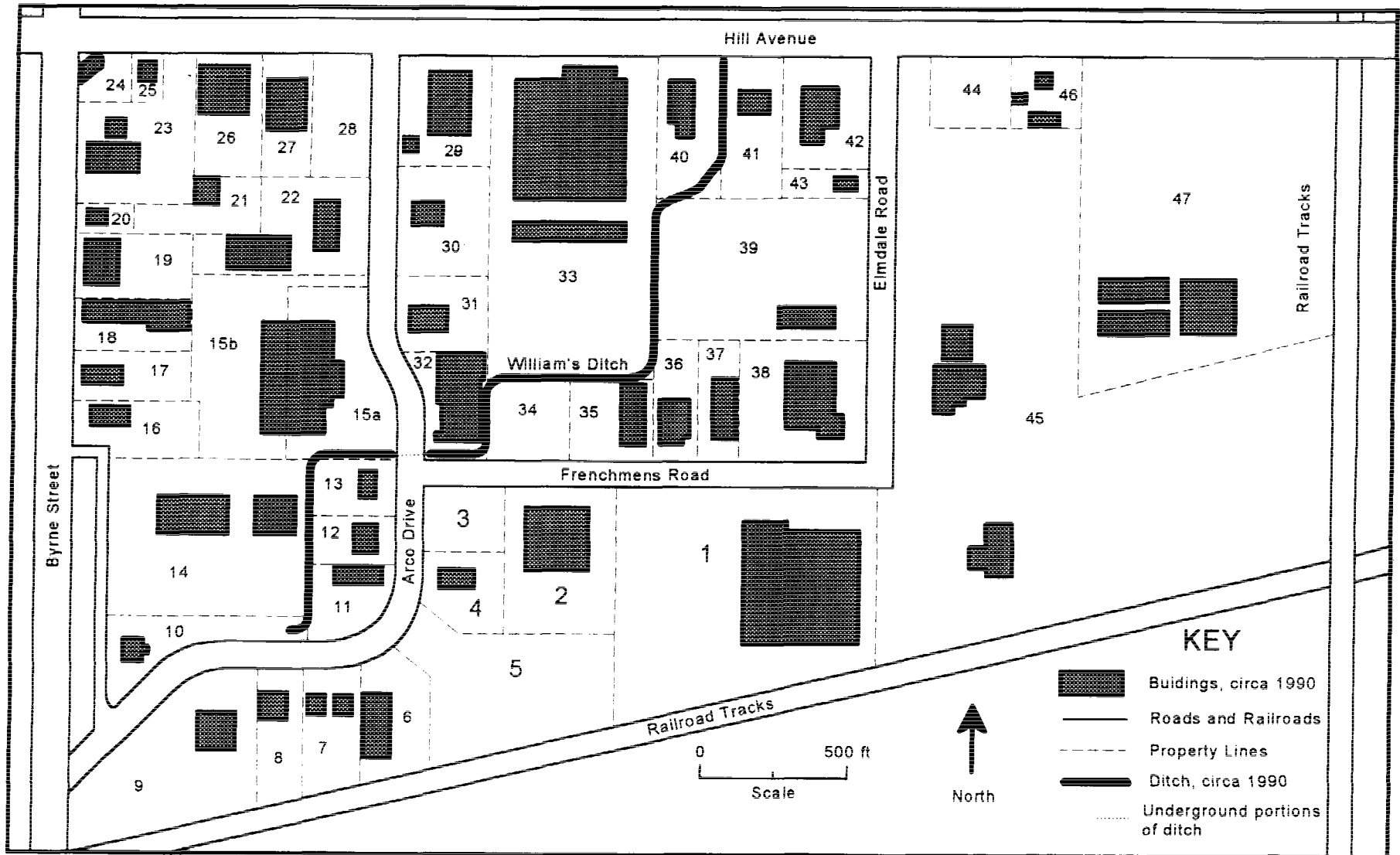


FIGURE 2
TOLEDO TIE TREATMENT SITE
CIRCA 1949 to 1962

